Book Reviews

Richard S. Felger. 2000. **Flora of the Gran Desierto and Río Colorado Delta**. (ISBN 0-8165-2044-5, hbk.). University of Arizona Press, 355 S. Euclid Ave., Suite 103, Tucson, AZ 85719, U.S.A. (Orders: www.uapress.arizona.edu, 520-621-1441, 520-621-8899 fax). $75.00, 700 pp, 440 illustrations, 8 1/2" × 11".

Contents.—Acknowledgments, Abbreviations. **Part I.** The Environment and Human Interactions (including Paleoclimate, Present Climate, Major Habitats, History and Human Influences, Growth Forms, and Bortanical History). **Part II.** The Flora (the systematic portion, of 521 pages). Gazeteer (by Bill Broyles and Richard Felger). **Appendices** (including **A.** Growth Forms and Distribution of Plants in Northwestern Sonora; **B.** Distribution of Plants in Sykes Crater; **C.** Commonly Cultivated Trees and Shrubs in Northwestern Sonora; **D.** Non-native Plants in Northwestern Sonora; **E.** Systematic Arrangement and Relative Abundance of the Grasses in Northwestern Sonora; **F.** Geographic Distributions of Grasses in Northwestern Sonora) Literature Cited Index.

"Excuses, corrections, and additions" to the book are maintained on the University of Arizona Herbarium (ARIZ) website <http://eebweb.arizona.edu/HERB/ tools/gran_des.html>.

The flora area is in the northwest corner of the Mexican state of Sonora, an area of approximately 15,000 square km (5790 square mi, about 5% the size of the adjacent state of Arizona) and one of the most arid regions of North America. "It is a substantial portion of the extremely arid center, or heart, of the Sonoran Desert. Within this region there are expansive dune fields, maritime strands, a small river, a once-great river and its delta, tidal wetlands, desert plains, steep granitic mountains, desert oases, and an enormous black and red volcanic field featuring its own mountain, lava flows, cinder cones, and formidable craters. Also included is the Quitobaquito oasis, along the international border but mostly on the Arizona side." Average annual precipitation varies from 40 to 195 mm, depending on locality, and variability is extreme – months or years may pass without significant rainfall, or much of the year's precipitation may occur during a few hours. "Average [average!] maximum daily temperature exceeds 38°C (100°F) during June, July, and August, and temperatures exceeding 38°C are common from late April to early October."

Within this cooker of an area, Felger documents the occurrence of 575 species of vascular plants (by my count from Appendix A), including 88 non-native species (a number of these are North American natives).

Comprising the bulk of the book are

* **original keys**;
* **short but useful technical descriptions** of species and infraspecific taxa, based "only on plants and populations from northwestern Sonora and immediately adjacent areas unless otherwise stated" and emphasizing "characters that seem important to understanding the variation and adaptations of plants in this arid environment;"
* **comments on habitat and distribution**, nativity, weediness, palatability, uses, and comparative notes on how to distinguish species from similar ones—this commentary often expansively developed, providing a vehicle for Felger's correspondingly expansive personal knowledge of these plants;
* **collection citations for each species**—the great majority of these Felger's own collections; and
* **illustrations**—apparently each species illustrated by a line drawing, often with details, these gathered from a variety of sources, with some originals.

Ira Wiggins's 1964 "Flora of the Sonoran Desert" (which covers the Gran Desierto region) is cited only twice—once in the 'Botanical History' section (p. 38) in connection with mention of early collections made by Wiggins and once (p. 39) in connection with synonyms in FGDRCD not appearing

in the Wiggins flora. This latter work, however, has more to go before outliving its usefulness, although, as one would expect after the last 35 years, the nomenclature is outdated in many areas and various species have been described de novo or discovered as range extensions. Felger's apparent disconnect from the earlier treatment probably reflects a true discontinuity, because the Flora of the Gran Desierto is truly an original, with trace of debt only to be inferred. And not only is FGDRCD packed with information, it is nicely organized and easy to read, good reading. Good price. For biologists and conservationists with an interest in American desert floras or simply in the flora of western North America, this book is a must-have.—*Guy L. Nesom, Botanical Research Institute of Texas, 509 Pecan Street, Fort Worth, TX 76102-4060, U.S.A.*

KAREN L. WILSON and DAVID A. MORRISON (eds). 2000. **Monocots: Systematics and Evolution.** (ISBN 0 643 06437 0, hbk.). CSIRO Publishing, P.O. Box 1139 (150 Oxford Street), Collingwood VIC 3066, Australia. $175.00, i–xiv, 1–738 pp, b/w photos, figures, 8 1/4" × 11 1/4".

Monocots: Systematics and Evolution is a proceedings volume resulting from the Second International Conference on the Comparative Biology of the Monocotyledons, held in Sydney, Australia, during the week beginning 28 September 1998. A total of 280 individuals from 31 countries participated in the conference, whose aim was to "increase our scientific understanding of the relationships, classification and functional biology of the monocots...." According to the preface, the 72 papers included in this volume "are based on presentations given at the conference, but many have been updated or extended to take into account new information." Given the rate at which much of the field of systematics is currently progressing, such updating is an important consideration. In addition, all the papers were peer-reviewed. A look at the authors is a good indication of the quality of the conference and volume—they include many of the most recognized and respected authorities worldwide on monocots, and systematics in general, working today. Such well-known names as Barrett, Bernhardt, Briggs, Chase, Conran, Fay, Goldblatt, Faden, Merrow, Rudall, Soltis, and Tomlinson (to mention a few) are seen scattered throughout the volume. The papers have been organized into three major sections (General Comparative Biology of the Monocots, Systematics of the Lilioids, Systematics of the Commmelinoids), with each of these divided into a number of subsections. For example, the section on Comparative Biology has papers in the following subsections: Phylogeny, Biogeography & Fossils, Development & Organization, Chemotaxonomy & Cytology, Micromorphology, Anatomy & Embryology, and Reproductive Biology.

If size (weight) is any indication of amount and quality of content, then this hefty six pound book is certainly worthwhile. Indeed, the overall quality of the numerous papers is quite high, and the volume is extremely useful for anyone wishing to see a wide-angle snapshot of the current understanding of monocot biology. In particular, the conference organizers and proceedings editors should be congratulated on putting together a conference/proceedings that includes information from a wide variety of disciplines and subspecialties (e.g., anatomy, biogeography, cytology, developmental biology, molecular systematics, paleontology, reproductive biology). While molecular information is currently providing some of the most profound and interesting insights in the field today, other disciplines are also making major contributions, as shown so well in this volume.

This said, I personally (with a taxonomist's bias) found several of the articles focusing on molecular systematics particularly interesting. For example, the first paper of the volume, "Higher-level systematics of the Monocotyledons: An assessment of current knowledge and a new classification" (by M.W. Chase et al.), clearly shows how molecular systematics has developed and matured. It is a